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June 2, 2003

RECEIVED

Via Hand Delivery

JUN - 2 2003

Mr. William F. Caton
Deputy Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: Copies of Ex Parte Presentation of DigitalGlobe to FCC's Office of Engineering and Technology ("OET") related to FCC NPRM Number 10331 (ET Docket 02-305)

Dear Mr. Caton:

Please find enclosed two copies of an *ex parte* presentation made by DigitalGlobe to the FCC's Office of Engineering and Technology on May 21, 2003.

The presentation was made in order for DigitalGlobe to discuss Late Comments to FCC Rulemaking Number 10331 ("RM-10331") in ET Docket Number 02-305 that DigitalGlobe filed with the FCC on May 15, 2003.

Please accept the filing of this *ex parte* presentation, and please do not hesitate to contact me regarding the filing of this *ex parte* presentation.

Cordially yours,
PIERSON & BURNETT LLP


Keil J. Ritterpusch
Counsel for GLOBALRADIO, INC.

Enclosure

CC: Qualex International

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An Ex Parte Presentation by DigitalGlobe to the FCC
Office of Engineering & Technology

Primary Ka-Band Allocation for Earth Exploration Satellite Service Downlinks

Spectrum Required to Fulfill National
Security Needs for Commercial
Imagery (May 21, 2003)




NOTE: Compliance with FCC Ex Parte Rules

This Ex Parte presentation is being made on May 21, 2003 to the FCC's Office of Engineering and Technology ("OET").

This presentation pertains to FCC Rulemaking Number 10331 (RM-10331) in ET Docket No. 02-305.

Pursuant to 47 C.F.R. Sections 1.1200 et seq. two (2) copies of this presentation are being concurrently submitted to the Secretary of the FCC.




The U.S. Commercial Remote Sensing Policy

Released on April 25, 2003

by the White House, Office of Science & Technology Policy

Fundamental goal of US policy is to:

“advance and protect U.S. national security and foreign policy interests by maintaining the nation’s leadership in remote sensing space activities, and by sustaining and enhancing the U.S. remote sensing industry.” [Emphasis added.]



U.S. Commercial Remote Sensing Policy

(con't.)

“To support the goals of this policy, U.S. companies are encouraged to build and operate commercial remote sensing space systems whose operational capabilities, products, and services are superior to any current or planned foreign commercial systems . . .”



U.S. Intelligence Community Relies on Commercial Remote Sensing Imagery

- CIA Director Tenet Memo directs NIMA to
 - Use commercial remote sensing data to the “greatest extent possible”
- January 2003 – NIMA commitment to procure up to \$1 billion worth of commercial imagery from DigitalGlobe and Space Imaging

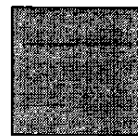


To Achieve the Policy Goals and Meet the National Security Data Requirements, Additional Bandwidth is Required

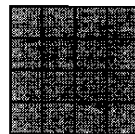
- Advanced Technology and Capabilities means Greater Resolution
- Greater Resolution means more Data
- More Data means higher throughput requirement
- Higher throughput can only be provided by more bandwidth



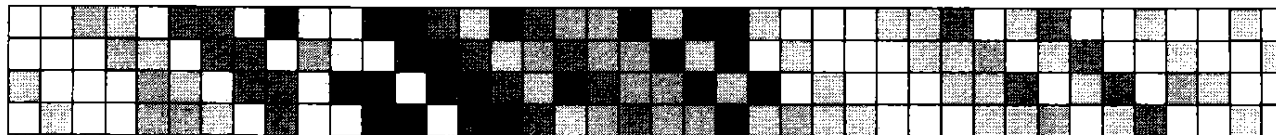
Increasing Resolution Increases Number of Bits Per Scene



1 Meter Resolution



$\frac{1}{4}$ Meter Resolution



Collection and Transmission

- Digital readout of scan is recorded on digital recorder
- When satellite is in view of Earth Station, recorded information is transmitted
- Transmit time is limited, for example, a twelve minute readout is not uncommon for DigitalGlobe
- Number of scenes that can be captured on ground is limited by transmission speed (bandwidth) and the duration of the line of sight.



As Resolution Increases, Number of Scenes Collected Decreases

Resolution (m)	1.0	0.50	0.25
Scan (m)	16,000	16,000	16,000
No. of Detectors	16,000	32,000	64,000
Readout (bits)	176,000	352,000	704,000
Scene (bits)	2,816,000,000	11,264,000,000	45,056,000,000
Scene Compressed	1,408,000,000	5,632,000,000	22,528,000,000
Transmit Speed (b/s)	320,000,000	320,000,000	320,000,000
Pass Duration (s)	720	720	720
Total Bits/Pass	230,400,000,000	230,400,000,000	230,400,000,000
Total Scenes/Pass	164	41	10



Factors Controlling Throughput

- Variables
 - Resolution – Market drives resolution
 - Swath Width – Dependent on No. of Detectors, Optics and Altitude
 - Recorder Capacity – greater than downlink capacity
 - Compression – Lossless @ 2:1
 - Bandwidth – dependent on availability
- Limiting Variable is Bandwidth
 - Variables (other than resolution) are Optimized to Bandwidth



Second Generation System

- Application has been filed with NOAA
 - 1/4 Meter Resolution System
 - Required to meet national security mapping needs
- FCC applications will be filed only after NOAA approval is received
 - Main limit on collection is frequency
 - New system will collect 16 times as much data for each sensor band as a 1 meter resolution system
 - Systems must be optimized for downlink capacity
 - Need is for more scenes, not less scenes
- Conclusion, Ka-Band allocation is required



Ka-Band Allocation for EESS was a Commercial Initiative

- Allocation of Ka-Band as PRIMARY for Earth Exploration Satellite Service downlinking (“EESS (S-E)”) was the result of efforts originally undertaken by the commercial remote sensing industry in the United States to meet future requirements



Report Prepared by Commercial Remote Sensing Industry Adopted as US Government Position at WRC-97

- Report highlighted limitations of X-band for future commercial remote sensing operations
- Report was supported by NASA after preparation
- Text of report is quoted in FCC RM-10331



International Allocation

DIGITALGLOBE™

25.5-27.0 GHz

Pre-97 WRC

Region 1	Region 2	Region 3
25.5-27.0 GHz FIXED INTER-SATELLITE 881a MOBILE Earth Exploration Satellite (S-E) 813 815 Standard Frequency and Time Signal-Satellite (E-S)		

Post-97 WRC

Region 1	Region 2	Region 3
25.5-27.0 GHz EARTH EXPLORATION SATELLITE (S-E) S5.536A S5.536B FIXED INTER-SATELLITE S5.536 MOBILE Standard Frequency and Time Signal-Satellite (E-S)		

Domestic Allocation

DIGITALGLOBE™

25.5-27.0 GHz

Current Allocation

Federal	Non-Federal
FIXED MOBILE Earth Exploration Satellite (S-S) Standard Frequency and Time Signal-Satellite (E-S)	Earth Exploration Satellite (S-S) Standard Frequency and Time Signal-Satellite (E-S)

NRM Proposed Allocation

Federal	Non-Federal
FIXED MOBILE ISS 5.536 EARTH EXPLORATION SATELLITE SERVICE (S-E) SF&TS (E-S)	Earth Exploration Satellite (E-S) Standard Frequency and Time Signal-Satellite (E-S)



Proposal of Digital Globe

DIGITALGLOBE[®]

for 25.5-27.0 GHz

Current Allocation

Federal	Non-Federal
FIXED MOBILE Earth Exploration Satellite (S-S) Standard Frequency and Time Signal-Satellite (E-S)	Earth Exploration Satellite (S-S) Standard Frequency and Time Signal-Satellite (E-S)

Digital Globe Proposed Allocation


Federal	Non-Federal
FIXED MOBILE ISS 5.536 EARTH EXPLORATION SATELLITE SERVICE (S-E) SF&TS (E-S)	<u>EARTH EXPLORATION SATELLITE SERVICE (S-E)</u> Standard Frequency and Time Signal-Satellite (E-S)



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